Aaliya Ahamed

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EDUCATION

Doctor of Philosophy *Aug 2024-present*
Biobehavioral Health
The Pennsylvania State University

Bachelor of Science in research *Aug 2020-May 2024*
Biotechnology
Shiv Nadar University, Delhi NCR
Cumulative GPA: 9.22/10

RESEARCH and TEACHING EXPERIENCE

Teaching Assistant *Aug 2024-present*
Course: BBH310 (Research strategies for studying Biobehavioral Health), BBH210 (Biobehavioral aspect of Genetics)
Assist the course instructor and provide support to students, address coursework-related queries and facilitate a deeper understanding of biobehavioral health and genetics concepts.

Graduate Researcher *Aug 2024-present*
Principle Investigator: Dr. Idan Shalev
Current ongoing project: Child Maltreatment and Telomere Length: Investigating Mediating Roles of HPA-Axis Dysregulation and Oxidative Stress

Final Year Project at Nanyang Technological University, Singapore *Jan– Jun 2024*
Topic: Reveal the core UPR transcriptional programme by RNA-seq meta-analysis
Project Advisor: Dr. Guillaume Thibault

- Reveal the conserved UPR transcriptional programme by RNA-seq meta-analysis.
- Developed the RNA seq pipeline for the lab to work on human specific tissue samples
- Identify subsets of the UPR transcriptional programme that are stress conditions- and species-specific.

Thesis at Shiv Nadar University, Delhi NCR, India *Aug– Dec 2023*
Topic: Expression analysis of the Boule-like genes in *Hydra* using *In situ* hybridization
Project Advisor: Dr. Puli Chandramouli Reddy

- Cloning of the Boule-like genes and studying the gene expression analysis
- Testing the effect of sex hormones on the expression of Boule-like genes
- Performed phylogenetic tree analysis to correlate the evolutionary conservation of the DAZ gene family

Summer Intern at the University of Alabama at Birmingham, USA *May– Aug, 2023*
Topic: Study of loss of gene function involved in proinflammatory lipid signaling pathways in cellular models using CRISPR-Cas9 system
Project Advisor: Dr. Sasanka Ramanadham

- Optimization of Transfection technique using Lipofectamine3000 on MIN6 cells
- Neon Electroporation on BMDMs and T cells; Targeted protein degradation using DOX induction

Intern at Indian Institute of Technology *Jan - Mar, 2022*
Topic: Principles of Drug Design and Development
Project Advisor: Prof. Mirza S. Baig

- Performed in silico peptide designing

Summer Intern at Dr. B.R. Ambedkar Center for Biomedical Research, Delhi *May– July, 2022*
Topic: Search for Hypothetical proteins in *Candida Albicans* & approaches to tackle its anti-Microbial Resistance
Project Advisor: Dr. Meenakshi Sharma

- Validation of the existing hypothetical proteins in *C. Albicans* by using computational tools

Undergraduate Research Scholar, Shiv Nadar University, Delhi NCR *Aug 2021 – April*
2022 Opportunities for Undergraduate Research (OUR)Program
Topic: How cystathionine beta-synthase upregulation protects HER2 and H1047RPIK3CA oncogene-positive mammary

epithelial cells from ferroptosis

Project Advisor: Dr. Anindita Chakrabarty

- Performed cancer survival analysis using the online Kaplan-Meier plotter tool.

AWARDS & HONORS

Fund for Excellence in Recruitment (FEGR) top-up award
Duration of the award: 2024-2025
The Pennsylvania State University

Selected for the Nanyang Technological University, Singapore India Connect Fall Research Fellowship
Duration of the fellowship: Jan-Jun, 2024

Awarded with the Deans List Award for the following semesters:
Monsoon, 2020 (First Semester); Spring, 2021 (Second Semester); Monsoon, 2021 (Third Semester)

Secured 3rd position at Hack4Rare Hackathon
MIT Hacking Medicine and Children's Tumor Foundation (Jul – Aug 2021))
Topic: Development of an interactive application to track and store developmental milestones in RASopathies children

WORK EXPERIENCE

Tele-genetics Service, Bluegene Health Tech *Jul 2021 – Jul 2022*

The company provides genetic counseling to patients in India, learned about various genetic testing procedures.

- Devoted around 12 hours a week.
- Curated pedigrees for various genetic disorders and presented a genetic disorder case at the weekly journal club meeting.

TECHNICAL SKILLS

Molecular Biology: Agarose/Polyacrylamide Gel electrophoresis, Polymerase Chain Reaction, DNA & RNA Extraction, plasmid isolation, transformation, molecular cloning, etc.
Biological Systems: Handling of cell lines (A549 and MIN6), yeast cell culture, working with and maintaining *Hydra* animal cultures (feeding, washing, etc.), mouse handling & dissection.
Microscopy: Confocal, Inverted, Upright, fluorescence microscopy.
Dry Lab: Blast, Clustal W, Panther, Faapred, CELLO, ESL-PRED, Eggnog, Primer3, Jalview, Basic Python, Phylogenetic analysis using various tools, Primer design, Linux Operating System, R script and R studio, RNA sequencing (single and bulk), Data QC

CONFERENCES & POSTER PRESENTATION

Ahamed, A. (2023, December). Expression analysis of Boule homologs and its involvement in the sex determination process in *Hydra* [Poster presentation]. *Internal Project Dissertation*.

Ahamed, A. (2023, September). Identification of boule homologs and their possible role in *Hydra* germ cell development [Oral presentation]. 9th *OUR (Opportunity for Undergraduate Research) Conference*, Shiv Nadar University, India.

Ahamed, A. (2023, July). Studying the effects of loss of function of genes involved in proinflammatory lipid signaling in cellular models using CRISPR-Cas technology [Poster presentation]. *Undergraduate Research Summer Expo*, University of Alabama, Birmingham, USA. https://doi.org/10.6084/m9.figshare.24630762.v1

WORKSHOPS

- 3 Aug - 4 Aug, 2023: NSF Workshop year 6 (Finding Your Inner Modeller), University of Alabama, Birmingham
- 13th March 2022: Breast Cancer Hub Workshop, Dr. Lopamudra Das Roy: On the etiology of cancer and metastasis, prevention, the role of lifestyle & inflammation, early detection, and genetics

PUBLICATIONS

- Hazazi, N. A. Alshehri, M. Bakhuraysah, F. A. Alsaeedi, A. Alharthi, **A. Ahamed**, S. A. Abu Dahsh, M. Albayadh, F. Anjum. Identification of Novel Natural BACE1 Inhibitors for Alzheimer's Disease: An In Silico Approach. *Advancements in Life Sciences*, 12(1). [Pending post-review and publication]

- Ye Q., **Ahamed A**., Shalev I., Etzel L, (under review). Comprehensive evaluation of reproductive profiles and epigenetic aging in post-menopausal women. [under review]

- **Ahamed, A.**, Shalev, I., House, L., & Ye, Q. *Child maltreatment and telomere length: Investigating mediating roles of HPA-axis dysregulation and oxidative stress.* [in preparation]